

Monitoring Loan Repayment among Farmers in Techiman, Ghana: Investigating the Effect of Cooperative Farming System

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Abstract

The main objective of this research is to investigate the effects of cooperative farming system on farmers' loan repayment ability since many funding institutions prefer to deal with groups instead of individuals in the framing communities. Many research works in this field have studied factors influencing individual farmers towards loan repayment but this paper extends the investigations by looking at farmers in a group or cooperative system. Two separate set of data were collected to enhance the findings (primary and secondary coming from cooperative groups). Based on an independent sample test, it was revealed that, the two groups were significantly different and so the factors necessitating the two conditions were not the same. This actually made the research inconclusive and since the groups that were not able to pay were the focal point of this research, primary data was then collected from group members through a random selection. A binary choice model (the logistic model) was used in the analysis of the data. The result of this analysis indicated that, polarization of religious background, number of married personalities in a group, size of a group, gender balance of a group and the variety of crops cultivated by the group were some group characteristics that affected the loan repayment performance of the groups. It was eventually recommended that, financial institutions in Ghana; should not entertain cooperative groups of single sex, must look out for groups whose members subscribe to the same religious faith and must always consider smaller groups as against larger ones..

Keywords: Cooperative farming system, Loan repayment, Farmers, polarization of religious faith.

INTRODUCTION

In Ghana, farming is done most intensively in the rural areas where access to improved and sophisticated farm implements is virtually absent. As a result of this deficiency, for a farmer to own a large parcel of farm, efforts of colleague' farmers become a perfect substitute in this regard. This effort is made possible through the formation of cooperative groups. It is a system where individual farmers come together to form a group even though they have individual farms. They do this so that each farmer would benefit from the collaborative effort of the entire group. The members of a cooperative group are selected based on the fact that, they share some common characteristics and goals which tend to bind them together. For three decades or there about, credit offering organizations have found it comfortable and less riskier in granting loan facilities to groups as opposed to individual farmers because they envisaged that members of a group would hold each other in check to prevent misapplication of funds. Contrary to this believe, some groups have reneged on their promise and this has become a worry to many financial institutions in Ghana. Many researchers have done a lot by identifying some factors which hinder the smooth repayment of loans granted to individual farmers. The literature below unravels a lot

of factors influencing repayment of loan facilities by farmers. Despite this effort, very little has been done in respect of studying factors which influence the repayment of group loans. This research has become very necessary because farmers residing in areas considered to be the food basket of Ghana hardly survive without the cooperative farming system.

LITERATURE REVIEW

The default in repayment of loans owed by individuals and organizations has adverse consequences on the long term sustenance of the credit given institutions and the chances of individuals to secure additional loans. In the light of this, many researchers have tried to examine loan repayment performance of many socio-economic groups. An empirical research conducted by Arene (1993) revealed income, farm size, age of farmers, farming experience and level of education of farmers to have contributed positively to the credit worthiness of farmers. Oladeebo and Oladeebo (2008) in their study examined the determinants of loan repayment among smallholder farmers in Ogbomoso Agricultural zone, Nigeria. The outcome of a multiple regression analysis indicated that amount of loan obtained by farmers, years of farming experience with credit, level of education, were major

factors that positively and significantly influenced loan repayment. Eze and Ibekwe (2007) examined the determinants of loan repayment under the indigenous financial system in Southeast Nigeria. It was discovered that, an amount of loan received, age of beneficiary, householder size, years of formal education and occupation were some of the significant predictors of loan repayment under the system. Mashatola and Darroch (2003) analyzed the factors affecting the loan status and repayment scheme of sugarcane farmers who received graduated mortgage loan in Kwazulu-Natal, South Africa. The results identified explanatory variables such as farm size, access to off-farm income, and average annual gross turnover relative to loan size as criteria in selecting potential farmers for such scheme since those variables were capable of making such farmers liquid to fund future operations and debt repayment. Okorie et al., (1986) examined the major determinants of agricultural smallholder loan repayment in Ondo State, Nigeria. This study identified the nature and timeliness of loan disbursement, the number of supervisory visits by credit officers, profitability of the enterprise on which the loan funds were invested as significant factors that stimulate loan repayment. Kohansal and Mansoori (2009) investigated the factors affecting loan repayment performance of farmers in Khorasan-Razavi Province of Iran. Results from a logistic model showed that loan interest rate was the most important factor affecting repayment of agricultural loans. The study also discovered farming experience, and total application cost as other crucial factors. Chirwa (1997) analyzed the determinants of credit repayment among smallholder farmers in Malawi using a profit model. Sales of crops, size of group, degree of diversification, income transfer and the quality of information were revealed as significant determinants of agricultural credit repayment. A survey conducted in Oyo State, Nigeria revealed that 66.9% of small scale farmers used their loans on farm operations such as payment for hired labour, purchase of implements, fertilizers, seeds and other farm inputs while 31.07% of them utilized their loan for household purpose which include paying for children education and medical treatment. Only 1.94% of them spent their loan proceeds on meeting the expenses of feeding and clothing the family. This was a clear indication that, the development cost when it comes to farming is huge and that can affect repayment. Again, misapplication of funds borrowed cannot be left unmentioned because it affects repayment of the facility they contracted.

Hunter (1996) said that the spate of defaults in commercial banks lending to agriculture is pervasive and it is prevalent in both developed and developing credit markets. Balogun and Alimi (1988) identified the major causes of loan default as loan shortages, delay in time of loan delivery, poor supervision, non

profitability of farm enterprises and undue government intervention with the operations of government sponsored programs. According to Von Pischke (1980), some of the impacts generally associated with default include the inability to recycle funds to other borrowers, detriment of other financial intermediaries from serving the needs of farmers and the creation of distrust

The literature on factors influencing loan repayment performance among financial institutions targeting the poor is very sparse and limited mainly to microfinance experience in low-income countries (Derban et al., 2005; Silwal, 2003). The results of the studies showed mixed revelations. Based on past literature, the factors affecting repayment performance of MFIs can be divided into four factors namely individual/borrowers factors, firm factors, loan factors and institutional/lender factors. Several studies by Greenbaum et al., (1995); Hoque (2000); Colye (2000) and Ozdemir & Boran (2004) show that when a loan is not repaid, it may be a result of the borrowers' unwillingness and / or inability to repay. Stiglitz and Weiss (1981) recommend that the banks should screen the borrowers and select the "good" borrowers from the "bad" borrowers and monitor the borrowers to make sure that they use the loans for the intended purpose. This is important to make sure the borrowers can pay back their loans. Greenbaum and Thakor (1995), recommended an exhaustive investigation into the borrower's past record and economic prospects to determine whether the borrower is likely to repay or not. This assertion was supported by Awoke (2004) that most of the default arose from poor management procedures, loan diversion and unwillingness to repay loans. Therefore, the lenders must devise various institutional mechanisms that aim at reducing the risk of loan default. Additionally, Tedeschi (2006) notes that there are two possible reasons of default: strategic default or default due to a negative economic shock. The lending contract provides incentives to discourage strategic default, but default due to an economic shock is unavoidable. In contrast, Hulme & Mosley (1996) argued that the important factors that contribute to loan repayment performance are the design features of the loan. They categorize the design features into three categories namely access method, screening method and incentive to repay. Access method generally ensures that poor people access the loans not the richer people and the features include maximum loan ceilings and high interest rate. Screening methods are used to screen out bad borrowers.

Few researchers also found that loan characteristics play an important role in determining repayment performance (Roslan & Mohd Zaini, 2009; Njoku, 1997; Ugobmeh et al., 2008). Copisarow (2000) found that defaults generally arise from poor program

design or implementation, not from any essential problems with the borrowers.

According to Deban et al. (2005), the causes of non-repayment could be grouped into three main areas: the inherent characteristics of borrowers and their businesses that make it unlikely that the loan would be repaid. Secondly, the characteristics of lending institutions and suitability of the loan product to the borrower affect loan repayment. Lastly, systematic risk from external sources can cause default. Vigenina & Kritikos (2004) find that individual lending has three elements namely the demand for non-conventional collateral, a screening procedure which combines new and traditional elements and dynamic incentives in combination with the termination threat in case of default, which ensure high repayment rates up to 100 percent.

Oke et al. (2007) mentioned that a firm or a group's profit can significantly influence loan repayment. Besides that, Khandker et al., (1995) raised the question of whether default is random, influenced by erratic behavior, or systematically influenced by area characteristics that determine local productions conditions or branch-level efficiency. Since in a cooperative system members do not have comparable knowledge, Godquin (2004) suggests that the provision of non-financial services such as training, basic literacy and health services has a positive impact on repayment performance. In view of that, Roslan & Mohd Zaini (2009) found that borrowers that did not have any training in relation to their business have a higher probability to default. Bassem (2008) examines the factors likely to affect the repayment performance of group lending in Tunisia. Empirical results from a logistic regression estimation showed that the repayment is influenced positively by the internal rules of conduct, the same business, and the knowledge of the other members of the group before its formation, the peer pressure, the self-selection, the sex, the education and the non financial services. However, the homogeneity, and the marital status had a negative influence on repayment.

RESEARCH HYPOTHESIS

A number of cooperative groups have been given loans for the past five years at Techiman in the Brong Ahafo region of Ghana by Sinnapi Aba Trust Company Limited. These groups had varied characteristics and for that reason, the study sought to test the effect of these characteristic on the group's ability to repay the loans. The following hypotheses are then formulated and tested;

H₁: The average age of the cooperative group members affects their loan repayment schedules.

H₂: The number of married personalities in a cooperative group has effect on their loan repayment performance.

H₃: The number of years of existence of the group has an influence its loan repayment performance.

H₄: Polarization of religious composition among group members' influences the ability of the group to pay back loans granted it.

H₅: The technical capability of the group leader has an influence on the group's ability to repay it loans.

H₆: The size of the group can influence the group's ability to pay back loans collected.

H₇: The gender balance of a group is a factor in determining the ability to pay back loans contracted.

H₈: The variety of crops the group deals in is a factor in determining loan repayment ability.

RESEARCH METHODOLOGY

The research used both primary and secondary data for its analysis. The secondary data was obtained from the Sinnapi Aba Trust (a financial institution) on all cooperative groups who have contracted loans while the primary data was obtained from interactions with the various groups identified. On quarterly basis, two groups of farmers were identified; those who could pay back their loans and those who could not pay back. The study adopted data for a population of 40 cooperative groups in the Techiman district of Ghana out of which 50% were not able to pay their loans. The 40 groups which formed the units for this research were selected based on the enshrined characteristics in the hypotheses above. The two tables as shown below (table 1 and 2) were developed from the secondary data collected. Table one shows the descriptive statistics of the groups while table 2 shows the independent samples test. Table 2 was developed to test the hypothesis H₀ which seeks to know whether there is significant difference between the two groups or not. The testing of this hypothesis was very important because the focus of the entire study was directed by that result. The result, if proved not to be significantly different would end the whole research but if otherwise (that is rejecting H₀) then, the study would research into factors impacting on the groups' repayment capabilities. If the former is the case, the 20 groups who were able to pay would be used as control but if the latter is the case, 4 members each would be selected at random from the groups who were not able to pay to supply the primary data for analysis using the logistic model.

H₀: There is no significant difference between the groups which were able to pay their loans and those who were not able to pay

The result of the T-test is as follows;

Table 1: descriptive statistics of the groups

Group Statistics				
OUTCOME	N	Mean	Std. Deviation	Std. Error Mean
LOAN: COULD PAY	20	10.05	5.633	1.260
COULD NOT PAY	20	3.20	3.607	.807

Source: data from Sinnapi Aba Trust

Table 2: Independent sample test of the groups
Independent Samples Test

Independent Samples Test								
		t-test for Equality of Means						
		t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
LOAN	Equal variances assumed	4.580	38	.000	6.850	1.496	3.822	9.878
	Equal variances not assumed	4.580	32.338	.000	6.850	1.496	3.805	9.895

Source: data from Sinnapi Aba Trust

From the descriptive statistics table 1, out of 20 groups who were able pay their loans, about 10 groups on the average were able to pay per quarter whilst about 3.20 groups out of those who were not able to pay defaulted per quarter with standard errors of 1.260 and 0.807 respectively.

The independent sample test (T-test) showed a two-tailed significant value (p-value) of 0.000 which is less than the α -level of 5%. This clearly is a sufficient evidence for the rejection of the null hypothesis. It is therefore noted that, there is significant difference between the two groups at 95% confidence interval. On the other hand, there is no association between the two groups hence they are independent of each other. This makes the study inconclusive at this stage hence the need to widen up the research to find the extent to which the factors described hypothetically above could affect the loan repayment schedule of farmers belonging to cooperative groups.

RESEARCH MODEL

The model below is a binary choice regression model (called the logistic model) prescribed to explain the behavior of the independent variables on the dependent variable which is the willingness to pay back loans contracted. The model based on the identified independent variables is;

$$P(Y=1) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon)}}$$

Where:

$P(Y=1)$ is the probability that a group will payback its loan.

β_0 is the intercept coefficients and ε is the error term
 $\beta_{1...8}$ are the coefficients of each of the independent variables

X_1 stands for average age of farmers in a group

X_2 stands for marital status of cooperative group farmers

X_3 stands for the number of years of existence of a group.

X_4 stands for polarity of religious background of a group.

X_5 stands for technical capability of a group leader

X_6 stands for the size of a cooperative group

X_7 stands for gender composition of a group

X_8 stands for varieties of crops cultivated by a group

Table 3. Results of the Logistic Regression analysis

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	3.172752	1.622916	1.954970	0.0506
X1	-0.026172	0.029165	-0.897354	0.3695
X2	0.326114	0.635682	-0.513014	*0.0679
X3	-0.429705	0.587414	-0.731520	0.4645
X4	-0.869197	0.607213	-1.431453	*0.0523
X5	0.791747	0.614802	1.287809	0.1978
X6	-0.444666	0.615288	-0.722695	*0.0299
X7	0.429308	0.684307	-0.627361	*0.0304
X8	0.160992	0.585467	-0.274980	**0.0033

From table 3 above, the probability values indicated with single asterisk shows significance at 10% while the double asterisk shows significance at 1%. The results therefore indicate that five out of the eight variables were highly significant in determining the readiness to pay back loans taken from the financial institution. This shows that for a cooperative group, factors that can influence the repayment of loans include; the marital status of cooperative group members(X_2), polarization of the religious background of group members(X_4), size of a cooperative group(X_6), variety of crops cultivated by the group(X_8) and gender balance of a group(X_7). The impacts of these variables are well explained using the probability values and value of the coefficients being it negative or positive. From the analysis, it was revealed that as the number of married members' increases in a group, the propensity to pay back loans also increases indicating a direct relationship. Again, the more polarized the religious composition of the group members the less likelihood it is to have the group pay back their loans to Sinnapi Aba. It was also revealed that, the larger the size of a group, the less the tendency to settle loans contracted and the more balanced the gender composition of a group becomes the higher the propensity to pay back loans. Finally, if a group indulges in the cultivation of variety of crops, the higher the tendency to make repayments of the loan facility accessed from Sinnapi Aba

CONCLUSIONS AND RECOMMENDATIONS

Following from the analysis above, it can be deduced clearly that, farmers who are married and belong to a group turns out to be more responsible than their other counter parts. This high degree of responsibility might be the fact that married persons believe that the repercussions of their occupational performance is highly consequential as far as making a good family is concerned. The research again found that, when all members of a group subscribe to the same religious believe, they understand each other better and are therefore able to organise themselves well towards loan repayment. For a smaller group, members are capable of monitoring each other very well and so, the possibility of members conforming to group principles and dynamics could be on the ascendancy. Furthermore, single sex groups do not encourage loan repayment. Finally, it was identified that a group whose preoccupation is to cultivate more than one crop find it easier paying back their indebtedness than the one who deals with a single crop every season

These findings and conclusions seek to reject hypotheses 1,3 and 5 while hypotheses 2,4,6,7 and 8 are accepted. The general notion based on the study conducted at Techiman in Ghana, the leader's technical ability, average age of group members and the number of years the group has existed has no impact on a group's repayment ability

Based on the above conclusions, the study recommends to all credit given institution especially Sinnapi Aba Trust that, they should watch out for the following characteristics when granting loans to cooperative groups to ensure sanity during repayment

They should concentrate on cooperative groups that are not made up of single sex throughout but preferably a mixed composition.

They should look out for groups where the majority or all the members subscribe to the same religious believe.

Cooperative groups must be discouraged from being large. Groups should not be allowed to contain more than ten members.

A group in which majority of the members are married is ideal because they would be more responsible.

Not all crops do well every season, hence a group restricting itself to a single crop is likely to default payment when they find themselves in an unfavourable season

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